Testing as a Service (TaaS)
Presentation to BCS SiGIST - 13th December 2011
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bjss
Solutions. Delivery. Focus.

The current economic climate is making companies review their approach to IT even more closely.
PROBLEMS
SOLUTIONS
Existing technologies of virtualisation, business process modelling, cloud based test automation tools and rapid and easy internet access allow for the development of approaches that allow companies to order testing as a service and pay only for what they use.

Testing as a Service: Approach

Approach	Traditional	TaaS
Supported Methodologies (Agile/XP/SCRUM/RUP/Waterfall)	•	•
Test Environments	• (manually created)	• (on demand)
Test Assets (Manual/Automated)	• (manually generated)	• (dynamic)
Test Data	• (manually generated)	• (dynamic sanitised)
Test Tools	• (manually purchased)	• (on demand)
Test Documentation	• (manually generated)	• (dynamic)
Business Domain Knowledge	• (manually extracted)	• (dynamic)

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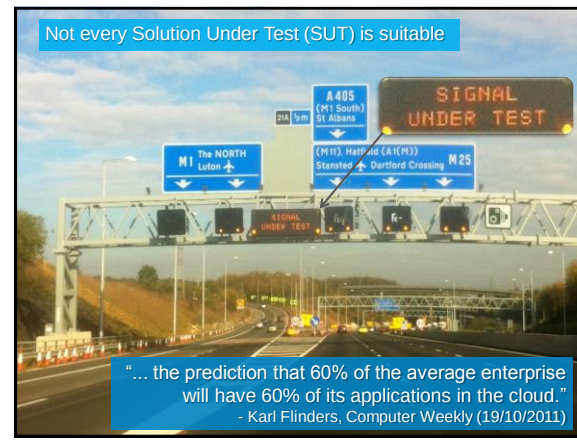
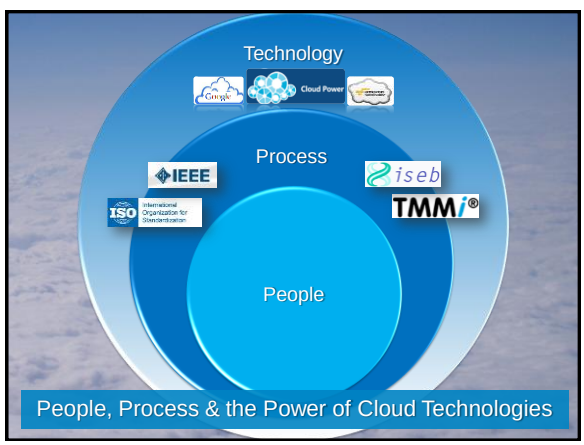
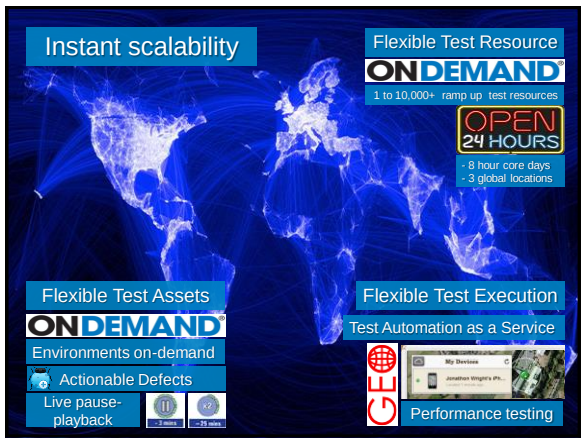
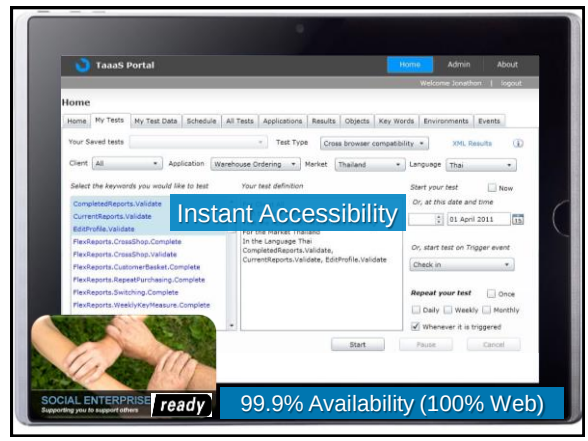

Not every Solution Under Test (SUT) is suitable
SIGNAL UNDER TEST
A405 (M1 South) St Albans
M1 The NORTH Luton
M25
"... the prediction that 60% of the average enterprise will have 60% of its applications in the cloud."
- Karl Flinders, Computer Weekly (19/10/2011)

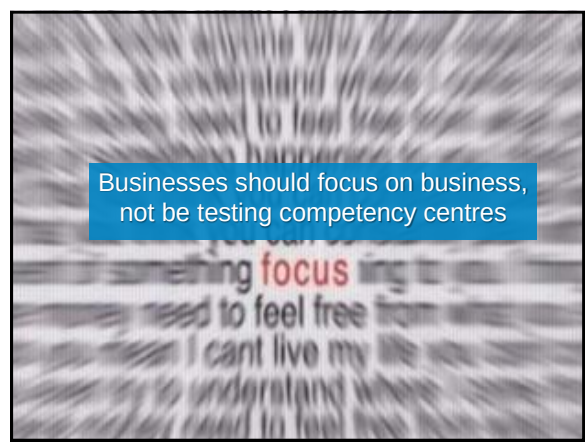


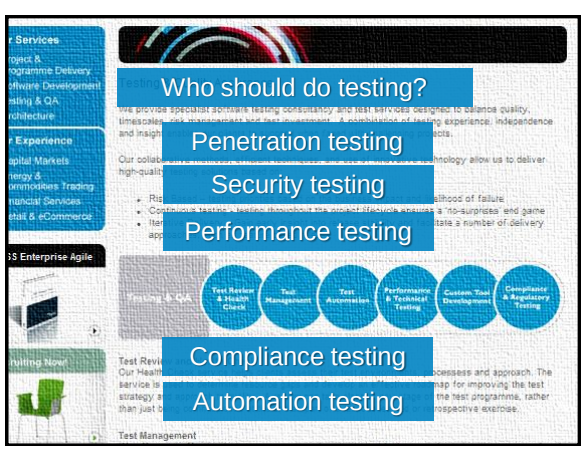
Technology: Cloud Power
:(
Testing in the Cloud
Your PC ran into a problem that it couldn't handle, and now it needs to restart.
A match made in heaven?
and/or
New Challenges & Opportunities?

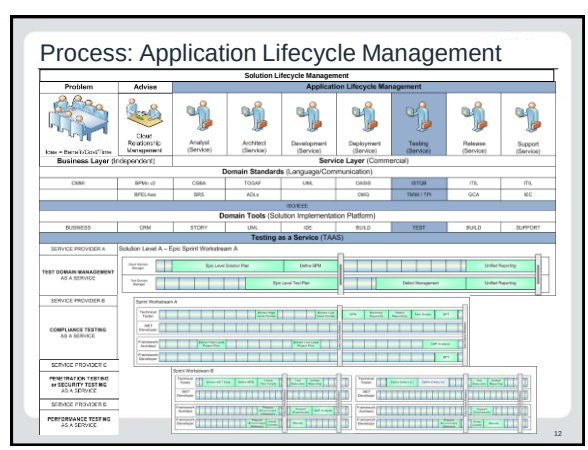

Instant scalability
Flexible Test Resource
ONDEMAND
1 to 10,000+ ramp up test resources
OPEN 24 HOURS
- 8 hour core days
- 3 global locations
Flexible Test Assets
ONDEMAND
Environments on-demand
Actionable Defects
Live pause-playback
Flexible Test Execution
Test Automation as a Service
Performance testing


TaaaS Portal
Home
Admin
About
Instant Accessibility
SOCIAL ENTERPRISE
ready
99.9% Availability (100% Web)

Application Lifecycle Management
Anydevice
Anytime
Anywhere
Instant Portability
Best of Breed (BoB) tools on demand

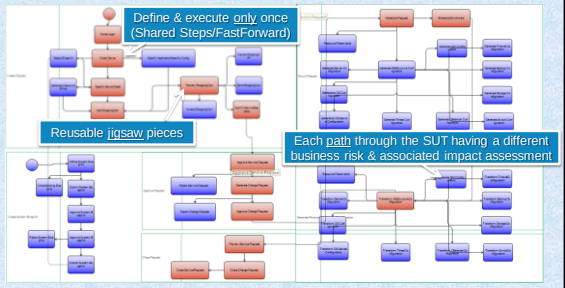

Businesses should focus on business, not be testing competency centres


Who should do testing?
Penetration testing
Security testing
Performance testing
Compliance testing
Automation testing


Process: Application Lifecycle Management
Solution Lifecycle Management
Application Lifecycle Management
Business Layer (Incepervise)
Service Layer (Commercial)
Domain Standards (Language/Communication)
Domain Tools (Solution Implementation Platform)
Testing as a Service (TAAS)

Process: Business Process Modelling

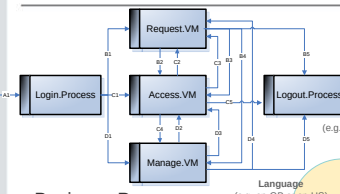
BPMN


Define & execute only once
(Shared Steps/FastForward)
Reusable jigsaw pieces
Each path through the SUT having a different business risk & associated impact assessment

"Business process modelling allows non subject matter experts to build and perform manual and automated tests without any previous domain expertise."

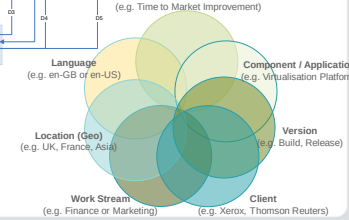
Process: Business Process Scenarios

FIRST DAY TESTING ready



Design complex tests scenarios from day one 'first day' testing
(e.g. A1>B1>B3>C4>D3>C5)

Business Process Scenarios map dynamically to an instance of the Solution Under Test
(e.g. TTMI_VP_1.2.2_TR_DEV_UK_EN or TTMI_VP_1.5.2_XEROX_TEST_FR_EN)



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Process: Business Process Testing

LEGACY MANUAL TESTING SUPPORT ready

Domain Specific Languages

Business Specific (Domain Specific Language)	Testing Specific (Domain Specific Language)
BSL	TSL
Business Level Keywords (Order.QuarterEnd.Report)	Testing Level Keywords (Login.Process)

Validated

Application Lifecycle Management Repository

ALM

Business/Test Workflows
Business/Test Rules
Business/Test Data

The test assets should be self-validating whilst being human readable

Login.Process

Action	Object	Event
Enter	Username	Text
Enter	Password	Text
Press	Login	Button

Detailed Script Definition (DSD)

Domain Specific Language

Actions | Objects | Events

Press | Login | Button

Verbs | Nouns

"verbs and nouns in the domain specific language are written in natural language which uses context sensitive validation."

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Example: Business Level Questions

- Business Level Question (Performance Testing Example)
- Non-functional Requirements (NFR)s
- Business Process Design (BPD)s / Business Components / Interfaces
- Detailed Session Definition (DSD) (Load/Stress/Soak/Baseline)
- Detailed Profile Definition (DPD) (User/Batch/Background(Traffic/Noise)
- Business Process Modelling (BPM)
- Business Process Scenario (BPS)
- Business Process Test (BPT)
- Detailed Test Definition (DTD)

Question: As a <**Credit Manager**> I need to report daily on <**Credit Scores**> within <**5 minutes**> so that I can present them to senior management.

ATDD Statement

Answer: **LR_CSO001_ReportOrder** maxed out at **322** seconds @ 98vUsers

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Example: Mapping Non-Functional Requirements

- Business Level Question (Performance Testing Example)
- Non-functional Requirements (NFR)s
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- Business Process Scenario (BPS)
- Business Process Test (BPT)
- Detailed Test Definition (DTD)

Testing as a Service (TaaS) Dashboard (Realtime)

Benefit Analysis	Risk Dashboard	Story Board
Business Stories	Business Risk	Business Domain Language
Business Rules	Project Risk	Test Domain Language
Business Workflow	Technical Risk	Business Questions
Business Process Design (BPD)	Non-Functional Requirements (NFR)	Detailed Session Definition (DSD)
Business Process Modelling (BPM)	Business Components & Interfaces	Detailed Profile Definition (DPD)
Business Process Scenarios (BPS)	Business Process Tests (BPT)	Detailed Test Definition (DTD)

Business | Project | Testing

Dynamic Data Adapters | Dynamic Test Adapters

Solution Under Test (SUT) Layer

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Example: Answering Business Questions

- Business Level Question (Performance Testing Example)
- Non-functional Requirements (NFR)s
- Business Process Design (BPD)s / Business Components / Interfaces
- Detailed Session Definition (DSD) (Load/Stress/Soak/Baseline)
- Detailed Profile Definition (DPD) (User/Batch/Background(Traffic/Noise)
- Business Process Modelling (BPM)
- Business Process Scenario (BPS)
- Business Process Test (BPT)
- Detailed Test Definition (DTD)

Q: Question: As a <Credit Manager> I need to report daily on <Credit Scores> within <5 minutes> so that I can present them to senior management.

NFR: NFR_519_PSV_PH1_CS
Request "Credit Score Report" @100 users @<5 minutes

BPD: CS025 | BC025 | INT025 | INT186 | INT293

DSD: 'V' Baseline Verification
Session: SOAK (Iteration 12 Cycle 1)

DPD: User Profile (Quarter-End)
DPD: Background Profile (Quarter-End)

BPM: Solution: Cloud Credit Manager (CCM)
Version: Release 1.1 Phase 2

BPS: LR_CSO001 (A1>B1>B3>C4>D3>C5)
Component: Credit Manager: Workstream: Finance
Language: en-GB | Location: France

BPT: LR_CSO001_ReportOrder

DTD: Order | CreditScore | Report
Measurement = 95% in <5 minutes

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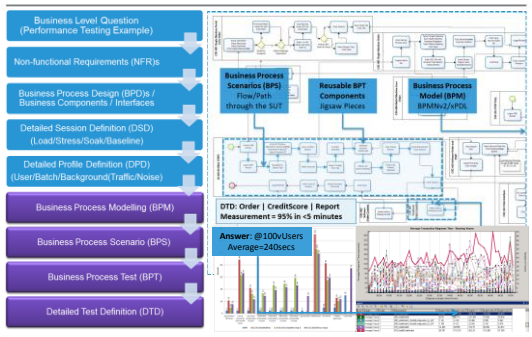
Example: Business Process Modelling


Business Level Question (Performance Testing Example)
Non-functional Requirements (NFR)s
Business Process Design (BPD)s / Business Components / Interfaces
Detailed Session Definition (DSD) (Load/Stress/Soak/Baseline)
Detailed Profile Definition (DPD) (User/Batch/Background(Traffic/Noise)
Business Process Modelling (BPM)
Business Process Scenario (BPS)
Business Process Test (BPT)
Detailed Test Definition (DTD)
Business Process Scenarios (BPS) Flow/Path through the SUT
Reusable BPT Components Jigsaw Pieces
Business Process Model (BPM) BPMNv2/xPDL
DTD: Order | CreditScore | Report
Measurement = 95% in <5 minutes
Answer: @100vUsers Average=240secs

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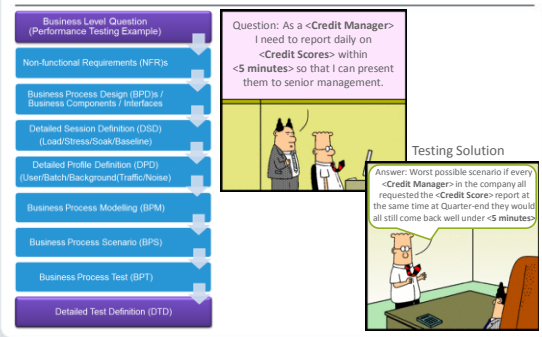
Example: Business Level Answers


Business Level Question (Performance Testing Example)
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Business Process Modelling (BPM)
Business Process Scenario (BPS)
Business Process Test (BPT)
Detailed Test Definition (DTD)
Question: As a <Credit Manager> I need to report daily on <Credit Scores> within <5 minutes> so that I can present them to senior management.
Testing Solution
Answer: Worst possible scenario if every <Credit Manager> in the company all requested the <Credit Score> report at the same time at Quarter-end they would all still come back well under <5 minutes>

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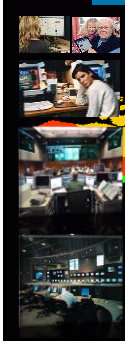
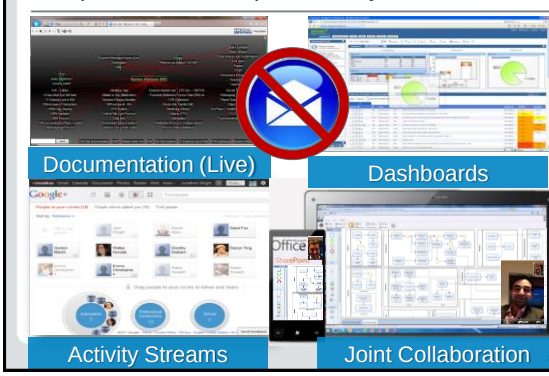
People: Where are the testers?



Time Zone 1	Time Zone 2	Time Zone 3
Community Tester - Platform: Hybrid Community Cloud (e.g. Facebook)		
Beta Tester - Platform: Public Cloud (e.g. beta.bbc.co.uk)		
Alpha Tester - Platform: Public/Private Cloud (e.g. alpha.bbc.co.uk)		
Cloud Tester - Platform: Private Cloud (e.g. vpn.internal.bbc.co.uk)		
Internal Tester - Platform: Private Cloud (e.g. internal.bbc.co.uk)		
Testing Command Center (Domain Specific) • Supporting Core Testing Activities (Environment Monitoring/Management) •Defect Monitoring & Risk Assessment (Social Enterprise Activity Feeds) •Testing Management (Test Assets & Resource Enablement)		
Solution Command Center (Solution Specific) • End client dashboard / reporting (KPIs) • Solution Management (Programme Level) •Service Provider Management (SLAs/Who does what when)		

People: Social Enterprise Ready



People: Domain specific teams

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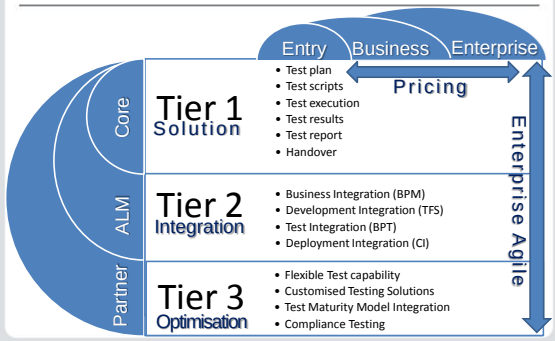
People: Cross-functional teams

Testers are testers, not programmers

"Many of the best tester's are technically minded and can program but a tester's real skill is applying testing knowledge to generate reusable test assets."

Testing as a Service: Solutions



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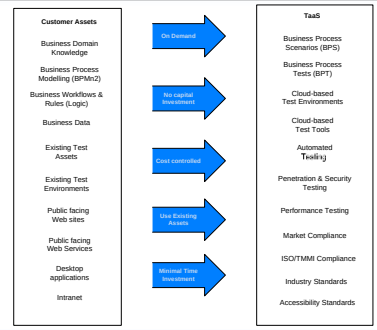
Testing as a Service: Benefits



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Testing as a Service: Summary

- Application Lifecycle Management support
  - Agile/BDD/TDD/Waterfall/SDLC
- Cloud-based test environments
  - Generated on-demand
- Cloud-based test resources
  - Flexible/scaleable on-demand
  - Social enterprise ready (portable/access on-demand)
- Cloud-based test assets (manual & automation)
  - Created using Domain Specific Languages (DSL)s
  - Validated against business & testing rules/workflows/data
  - Automatic generation of living test documentation
- Business domain knowledge
  - Business Process Modelling (BPMn v2.0/eXtensible Process Definition Language)

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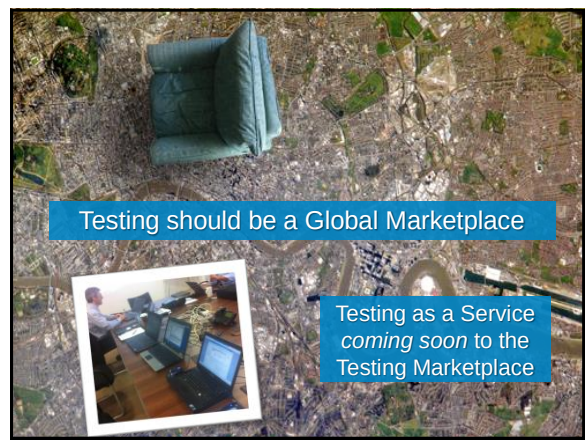

Testing as a Service: Final Thoughts

"The best aspects of these proven test approaches demonstrate how they have evolved over the past decade, and this echoes some of the changes towards more lean and agile business methodologies. They are in a constant state of evolution – just as the underpinning technology evolves over time."

My section in the 'Experiences in Test Automation' book (Dorothy Graham & Mark Fewster) 2012.

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About BJSS

- Offices in Leeds & London
- Operate nationally & internationally
- 250 first class technical staff
- Specialists in:
  - Application Development & Systems Integration
  - Functional and Technical Testing
  - Financial Markets
  - Infrastructure and technology strategy
- Full Project Lifecycle
  - Project Management and Technical Architecture
  - Design, Development and Testing
  - Maintenance and Support
- Enterprise Agile approach
- Flexible delivery model
- Success in fixed price global system deliveries

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